

R E M A R K S

Careful review and examination of the subject application are noted and appreciated.

SUPPORT FOR CLAIM AMENDMENTS

Support for the amendments to claims 1, 10 and 11 can be found in the specification as filed, for example, page 10, lines 1-13 and in the drawings, FIG. 2. As such, no new matter has been introduced.

Support for new claims 12-21 can be found in the specification as filed, for example, page 11, line 5 through page 14, line 18; page 12, lines 9-10; page 13, lines 1-3 and in the drawings, FIG. 4. Additional support can be found on page 15, lines 6-9 and lines 19-21. As such, no new matter has been introduced.

CLAIM REJECTIONS UNDER 35 U.S.C. §112

The rejection of claims 2-3 under 35 U.S.C. §112, second paragraph, has been obviated by appropriate amendment and should be withdrawn.

CLAIM REJECTIONS UNDER 35 U.S.C. §102

The rejection of claims 1, 2, 4, 6, 7, 10 and 11 under 35 U.S.C. §102 as being anticipated by Lelm has been obviated by appropriate amendment and should be withdrawn.

Lelm discloses a dual clock domain interface between CPU and memory bus (Title).

In contrast, the present invention provides an apparatus comprising a processor, an interface and a memory. The processor may be configured to operate at a first data rate in response to a first clock signal. The interface circuit may have a state machine and may be configured to (i) operate at a second data rate in response to a second clock signal and (ii) convert data received from the processor over a system bus from the first data rate to the second data rate. The memory may have a plurality of banks (i) coupled to the interface circuit and (ii) configured to present/receive data to/from the system bus at the second data rate. The state machine may be configured to precharge and close all of the plurality of banks prior to a refresh cycle being performed. Claims 10-11 provide similar limitations. Lelm fails to disclose such limitations.

In particular, Lelm fails to disclose the presently claimed memory having a plurality of banks (i) coupled to the interface circuit and (ii) configured to present/receive data to/from the system bus at the second data rate, where the state

machine is configured to precharge and close all of the plurality of banks prior to a refresh cycle being performed. Lelm fails to disclose the presently claimed state machine that is configured to precharge and close all of the plurality banks prior to a refresh cycle being performed. While Lelm may disclose a state machine 730 that is part of the clock control circuit 214 (e.g., see FIG. 7), Lelm fails to disclose that the state machine 730 precharges and closes all banks prior to a refresh cycle being performed. At best, Lelm discloses that the clock control circuit 214 generates clock outputs (e.g., DOMAIN TRANSLATION CLOCKS 212)) based on current states of the state machine 730 (see col. 9, lines 9-11). The logic of the state machine 730 is based on inputs PSYNCH 116 and MODE0 502 (see FIG. 6). In particular, the state machine 730 transitions to/from states based on combinational logic involving the inputs PSYNCH 116 and MODE0 502 (see FIG. 6).

Lelm is concerned with generating clock outputs (e.g., DOMAIN TRANSLATION CLOCKS 212) with the clock control circuit 214 based on the current state of the state machine 730. In contrast, the present invention provides a state machine that is configured to precharge and close all banks prior to a refresh cycle being performed. One skilled in the art would recognize that generating clock outputs with a clock control circuit based on the current state of a state machine is not the same as the presently claimed state machine configured to precharge and close all banks prior to

a refresh cycle being performed. Therefore, Lelm fails to disclose the presently claimed state machine configured to precharge and close all banks prior to a refresh cycle being performed. As such, the presently claimed invention is fully patentable over the cited reference and the rejection should be withdrawn.

CLAIM REJECTIONS UNDER 35 U.S.C. §103

The rejection of claims 3, 5 and 8-9 under 35 U.S.C. §103 as being unpatentable over Lelm in view of Mueller has been obviated by appropriate amendment and should be withdrawn. Claims 3, 5 and 8 depend directly or indirectly on claim 1 which is now believed to be allowable.

As such, the presently claimed invention is fully patentable over the cited references and the rejection should be withdrawn.

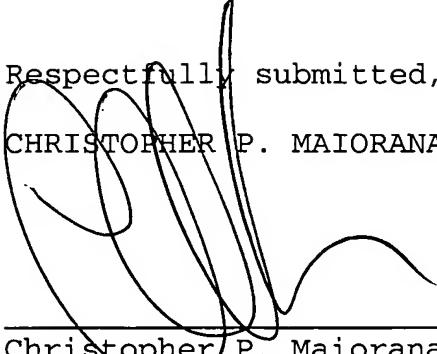
Accordingly, the present application is in condition for allowance. Early and favorable action by the Examiner is respectfully solicited.

The Examiner is respectfully invited to call the Applicant's representative at 586-498-0670 should it be deemed beneficial to further advance prosecution of the application.

If any additional fees are due, please charge Deposit
Account No. 12-2252. .

Respectfully submitted,

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